Communicable Disease Report

Hawai'i Department of Health
Communicable Disease Division

http://www.state.hi.us/doh/resource/comm_dis/cdr.html May/June 2002

Fluoroquinolone-resistant N. gonorrhoeae *in Hawai`i – 2001*

Gonorrhea is the third most frequently reported communicable disease in Hawai`i. Untreated infections are a major cause of pelvic inflammatory disease, infertility, ectopic pregnancy, and pelvic pain.

Antimicrobial resistance has emerged as a major challenge to both the treatment and control of gonorrheal infections. The appearance of penicillin- and tetracycline-resistant strains of *N. gonorrhoeae* since the 1970's necessitated abandoning these drugs for the treatment of gonorrhea. The Centers for Disease Control and Prevention (CDC) currently recommended treatment for gonorrhea includes an option of one of two cephalosporins, ceftriaxone and cefixime, or one of two flouroquinolones; ciprofloxacin and ofloxacin. However, ciprofloxacin-resistant (Cip-R) *N. gonorrhoeae* isolates have been increasing in Hawai`i. Prior to 1997, Cip-R was detected in less than 1.5% of N. gonorrheae isolates. Over the past few years, the proportion of Cip-R *N.gonorrhoeae* isolates increased significantly from 10.5% (72/688) in 1998-2000 to 20.7% (52/265) in 2001 (Figure 1, page 2).

Although currently all gonococcal isolates have demonstrated susceptibility to cephalosporins, the state of Hawai`i detected its first isolate with decreased-sensitivity to azithromycin in 2000 and three isolates with decreased-sensitivity to cefixime in 2001. Increases in fluoroquinolone-resistant *N. gonorrhoeae* are of great concern in light of the limited number of antibiotic regimens effective for the treatment of gonorrhea.

Case Control Study

A case-control study was conducted to identify risk factors for Cip-R. Antibiotic sensitivity was reviewed on *N. gonorrhoeae* isolates obtained from patients coming to the Department of Health (DOH) Sexually Transmitted Disease (STD) Clinic on O`ahu between January 1 - December 31, 2001. STD contact interviews were conducted in patients who were diagnosed with gonorrhea. Clinical and epidemiological information was collected from chart abstraction and from patient interviews.

Patients with ciprofloxacin-intermediate sensitivity (Cip-I) and Cip-R *N. gonorrhoeae* isolates were compared to patients with ciprofloxacin-susceptible (Cip-S) *N. gonorrhoeae* isolates. One hundred twenty-three patients were diagnosed with gonorrhea. Five of 123 were gram positive and culture negative. Antibiotic sensitivity panels were performed in 99% (116/117) of the specimens submitted.

Results

Twenty percent (22/117) of the *N. gonorrhoeae* isolates were Cip-I/Cip-R (Table 1). Of these, 22/22 were also of intermediate-resistance or resistant to penicillin and tetracycline. Four of 22 showed decreased-sensitivity to cefixime (3/4 were confirmed by CDC).

continued on page 2

Table 1. Ciprofloxacin Susceptibility of Gonorrhea Isolates By Reporting Source, 2001

Ciprofloxacin Sensitivity	Public STD Clinic	Private Clinics	Total No.	Percent
Susceptible	95	112	207	78
Intermediate	3	3	6	2
Resistant	19	33	52	20
Total	117(44%)	148 (56%)	265	

N. gonorrhoae in Hawai`i

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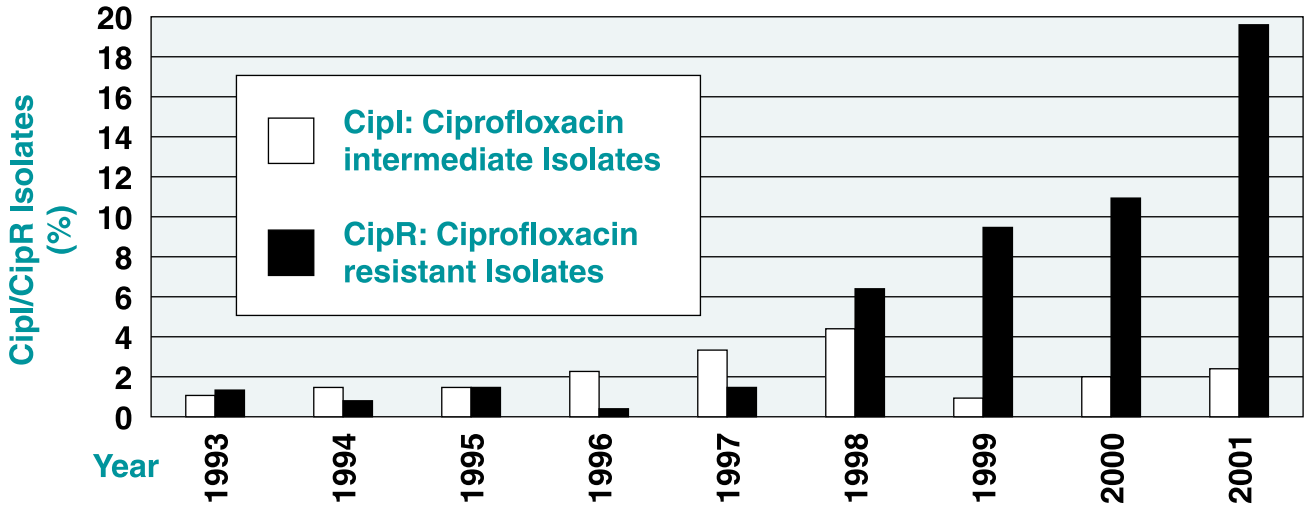
Figure 1. CipI/CipR Gonococcal Isolates - Hawaii, 1993-2001



In 2001, 8/13 (62%) of Cip-I/Cip-R patients or their sex partners and 38% (29/75) of Cip-S patients or their sex partners reported recent travel outside of Hawai`I (OR=6.7). Involvement with commercial sex workers (16%, 4/19) Cip-I/Cip-R versus Cip-S (2/84, 2%) also showed a statistically-significant association (OR=10.9). Age, gender, race, sexual orientation, prior use of antibiotics, history of STD, symptoms of discharge or dysuria at time of visit, reason for clinic visit, mean number of sex partners, and new sexual partners in past 60 days did not show a statistically-significant difference between the two groups. These results suggest that fluoroquinolone-resistance has become endemic in Hawai`i with travel outside of Hawai`i a contributing factor.

Recommendations

A. For medical providers:

1. Have a high level of suspicion for the diagnosis and treatment of gonorrhea,
2. Ceftriaxone or cefixime is the recommended first line therapy for gonorrhea in Hawai`i,
3. Fluoroquinolones should not be used to treat gonorrhea in Hawai`i.
4. If signs/symptoms persist after antibiotic treatment, consider submitting a specimen for *N. gonorrhoeae* culture and antibiotic sensitivity,
5. All cases of gonorrhea should be immediately reported to the DOH, and
6. Providers should elicit the name and locating information of sex partners for medical management.
7. Gonorrhea screening is recommended for sexually active patients with one or more of the following:
   a) Patients who report new or have multiple sex partners,
   b) Patients who are 25 years and under, and
   c) Patients who have a prior history of STDs.

B. The DOH will continue gonococcal resistance monitoring of all specimens submitted to the STD clinic.

C. The DOH will also continue to prioritize interviewing and collecting expanded risk behavior information from STD clinic patients with gonorrhea and private sector patients with Cip-R *N. gonorrhoeae*.

D. The DOH will make active efforts to inform community-based organizations and the community of increases in resistant gonorrhea.

For further questions or information, please contact Roy Ohye or Venie Lee at the STD Prevention Program Office in Honolulu at (808) 733-9281.

Submitted by Venie Lee, M.P.H., Epidemiological Specialist, Sexually-Transmitted Disease Prevention Program, STD/AIDS Prevention Branch.

Communicable Disease Report

Communicable Disease Division	586-4580
Epidemiology Branch	586-4586
Tuberculosis Disease Control Branch	832-5731
Hansen's Disease Control Branch	733-9831
STD/AIDS Prevention Branch	733-9010
STD Reporting	733-9289
AIDS Reporting	733-9010
Information & Disease Reporting	586-4586
After-hours Emergency Reporting	247-2191 (State Operator)
After-hours Neighbor Island Emergency Reporting	800-479-8092

The Health State
HAWAI'I STATE DEPARTMENT OF HEALTH

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Published bimonthly by the Hawai'i Department of Health, Communicable Disease Division, 1250 Punchbowl Street, Honolulu, Hawai'i 96813
Postage paid at Honolulu, Hawai'i

Dengue Outbreak Declared Over

The Outbreak

On May 10, 2002, Dr. Bruce Anderson, Director of Health, declared the dengue fever outbreak over in Hawai`i. The last case on Maui had symptom onset on February 9, while the last O'ahu case had onset of illness on January 28. One hundred nineteen people in Hawai`i contracted dengue fever between June 2001 and February 2002. There were 89 cases on Maui, 26 on O`ahu, and four on Kaua`i. One hundred fourteen became ill in 2001, and five in 2002. In addition 35 residents contracted dengue fever in 2001 in other countries. To date in 2002, there have been six imported cases, the most recent having onsets in April after being exposed on Rapa Nui and in Cambodia.

Florida Medical Entomology Laboratory ©1999 University of Florida

Aedes aegypti and Aedes albopictus.

Because of the risk of reintroduction of the disease, the Department of Health (DOH) will continue a statewide surveillance program, including testing of patients with symptoms compatible with dengue. This will enable the DOH to more quickly detect an outbreak to minimize transmission. Vector control crews will also continue to spray around the homes of suspected cases to eliminate mosquitoes potentially carrying the virus.

Statewide Aedes Aegypti Mosquito Survey

A statewide mosquito survey was conducted from March 2002 through May 2002 to help identify habitat areas and invasive alien mosquito species found in the state. Since the recent outbreak was associated with *Aedes albopictus,* determining the location of the more efficient vector, *A. aegypti,* will help the DOH map, prioritize and target vector control efforts statewide.

The survey sampled 295 sites on six islands (O'ahu, Hawai`i, Kaua`i, Maui, Moloka`i and Lana`i). 4153 wooden paddles were used to collect mosquito eggs. A total of 67346 eggs were collected. *Aedes aegypti* were found only on the island of Hawai`i; there were nine sites identified in the North and South Kona districts, three sites in the Ka`u district, and one site in Puna. In the last statewide mosquito survey completed in 1968, *A. aegypti* were also found at two sites on the islands of Moloka`i and Lana`i. The current survey did not sample the same sites, so it is unknown if Moloka`i and Lana`i are truly free of *A. aegypti*.

Importance of Mosquito Control

Dr. Anderson said "Controlling the outbreak and limiting the spread of the disease was a high priority for the DOH. It would not have been possible without the full cooperation of department staff, the counties, businesses and the dedication of residents throughout the state. The effort of residents to eliminate mosquito breeding areas around homes was a critical component of this success. But it is important to remember that the battle is not over, that we all need to commit to a long-term approach to this potentially serious public health threat. All of us must make mosquito reduction a way of life."

Dengue fever is common in many tropical areas in the world and could be re-introduced into the state. Vigilant mosquito control is the only effective means to prevent importations of the disease from establishing itself in the islands. Every resident needs to be increasingly vigilant regarding mosquito control in and around their homes and businesses, especially following periods of rainfall.

The DOH dengue fever website will continually be updated with information and updates on dengue fever in Hawai`i and around the world. For more information, please see the website at www.hawaii.gov/doh/dengue.

Submitted by David M. Sasaki, D.V.M., M.P.H., Veterinary Medical Officer, Epidemiology Branch.

The Vaccine Adverse Event Reporting System (VAERS)

The National Childhood Vaccine Injury Act of 1986 mandated that all health care providers report certain adverse events that occur following vaccination. As a result, the Vaccine Adverse Event Reporting System (VAERS), a national vaccine safety surveillance program co-sponsored by the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) was established in 1990. VAERS collects and analyzes information from reports of adverse events associated with vaccines currently licensed in the United States. Adverse events are defined as health effects that occur after immunization that may or may not be related to the vaccine. VAERS data are continually monitored in order to detect previously unknown adverse events or increases in known adverse events.

The Data Base

VAERS accepts reports from health care professionals, vaccine manufacturers, and the general public, but reporting of adverse events by clinicians has historically been the most reliable source of drug safety alerts. Reports are submitted via mail and fax, and the internet. All reports, are collected into the national VAERS database.

Because of the diverse population it covers and the relatively large number of reports it receives, VAERS is useful for detecting new, unusual, or rare events and assessing newly licensed vaccines. Careful review of reports during the initial months of licensed use can provide additional assurance about the safety of a new vaccine, uncover previously unexpected events which occur when a vaccine is used in a new sub-group, or rapidly identify problems not seen during pre-licensure evaluation.

Limitations

VAERS is subject to the limitations inherent to any passive surveillance system. Underreporting of events is one of the main limitations, and more serious medical events are more likely to be reported than are minor ones. Other potential reporting biases include increased reporting in the first few years after licensure, preferential reporting of events occurring soon after vaccination, and increased reporting after publicity about a particular known or alleged type of adverse event. Overreporting also occurs, since VAERS accepts reports without prejudice with regards to their source.

Significant methodologic limitations of VAERS include the fact that it does not collect information on the incidence of adverse events in unvaccinated control groups, nor does it provide information on the total number of doses of vaccine actually administered to patients.

Value

Despite these limitations, VAERS has been able to fulfill its primary purpose of identifying new and/or rare vaccine side effects, increases in rates of known side effects, and patient risk factors for particular types of adverse events.

Since it's inception, VAERS has received more than 100,000 reports. Though this seems like a very large number, it is relatively small compared with the approximately 100 million doses of childhood vaccines distributed during the past decade. VAERS seeks to capture all clinically significant medical events occurring post-vaccination, even if the reporter is not certain that the incident is vaccine related. Reports are received primarily from manufacturers (42%) and health care providers (30%) with fewer reports filed by patients and their parents (7%) and state and local health departments (12%).

Role of Providers

The role of the health professional in supporting the national passive surveillance system is essential, since the first hint of a potential problem usually originates with the astute clinician who reports a case to the appropriate source. Health professionals have access to the most complete information related to adverse events experienced by their patients. Any thought that a serious event or death may be related to vaccination is reason for the health professional to submit a VAERS report. Determination of whether an event was caused by the vaccine is not a prerequisite for filing a VAERS report. VAERS solicits reports for all events temporally related to vaccination, some of which may be coincidental and some of which may merely indicate a change in the frequency of expected events, even minor ones. Post-marketing surveillance relies on health professionals reporting suspicious events, thus improving the quality of reported data and contributing significantly to safeguarding public health.

VAERS encourages the reporting of any clinically significant adverse event that occurs after the administration of any vaccine licensed in the U.S. The National Childhood Vaccine Injury Act **requires** health care providers to report:

- Any event listed by the vaccine manufacturer as a contraindication to subsequent doses of the vaccine.
- Any event listed in the Reportable Events Table that occurs within the specified time period after vaccination.

Report adverse events associated with vaccines on Form VAERS-1. Pre-addressed/postage paid report forms and copies of the Reportable Events Table may be obtained by calling VAERS at 1-800-822-7967. You may download printable copies of the VAERS form as well as further information about the VAERS program from the following Internet sites:

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Vaccines For Children Provider Survey on Immunization Registries

A total of 322 immunization registry surveys were mailed to Vaccine for Children (VFC) providers statewide on March 21, 2001. A total of 245 surveys were returned for a response rate of 76%. This was a high response rate for a self-administered questionnaire.

Approximately 25% of providers reported that they have immunization records in a computer database and about 70% have Internet access. Access to the registry is planned to be through an internet website; therefore, the 30% without access to the internet will require other options.

Over **two thirds** of VFC providers rated the following possible **benefits** of an immunization registry as very important (Figure 1, page 6):

- Recall and reminder notices for patient immunizations,
- Information regarding which immunizations are due, and
- Immediate access to a patient's immunization record.

Over **one half** of VFC providers rated the following possible **barriers** of an immunization registry as very important (Figure 2, page 6):

- Cost and time of computer equipment or software,
- Confidentiality regarding patient information,
- Cost and time of staff entering and retrieving data,
- Possible additional reporting requirements, and
- Incomplete patient immunization history in the registry.

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VAERS

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VAERS: http://www.vaers.org

FDA: http://www.fda.gov/cber/vaers/vaers.htm

CDC: http://www.cdc.gov/nip

For further information, please call the Hawaii Immunization Program at (808) 586-8300.

Reference:

Centers for Disease Control and Prevention. Iskander, J.K., Miller, E.R., Pless, R.P., Chen, R.T. Vaccine Safety Postmarketing Surveillance: The Vaccine Adverse Event Reporting System. 2002.

Editor's Note. There is a continuing education activity sponsored by the Centers for Disease Control and Prevention (CDC) online. For more information, please see the CDC Training and Contiuing Education Online System at *http://www.phppo.cdc.gov/phtnonline*.

New Hansen's Disease Branch Chief

Michael Maruyama, M.P.H., was named Chief of the Hansen's Disease Branch effective May 29, 2002. Mr. Maruyama began employment with the Department of Health in 1983 as an epidemiological specialist for the Sexually Transmitted Diseases Program. He has held numerous positions within the Department including program planner, Hansen's Disease Community Program Manager, and Acting STD/AIDS Branch Chief. Most recently he served as Acting Chief of the Hansen's Disease Branch.

He received his Master's in Public Health degree from the University of Hawai`i at Manoa. He brings broad skills in administration, a knowledge of disease control and sensitivity to the concerns of people afflicted with Hansen's disease to this position.

He is married with two children.

Maruyama looks forward to the unique challenges offered in a branch with a 150-year Hansen's disease history as well as those new cases in recently discovered high risk populations.

Vaccines for Children

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Over **one half** of VFC providers rated it very important to develop a Hawai`i immunization registry (Figure 3). Eighty percent of VFC providers indicated it is important or very important to develop a registry. Only 3.5% indicated that developing a registry was not important.

In conclusion, this short one page survey had a high response rate among VFC providers with 80% of providers rating the development of a registry as important or very important. However, there is a need to address the concerns of over half the VFC providers:

- Cost of implementing a registry in their practices related to equipment and data entry. Incorporating immunization billing data into the registry may eliminate the need for duplicate keystrokes and allow the use of the provider's present computer equipment.

- Additional reporting requirements and confidentiality of immunization records. Providers should participate in the development of the registry including drafting guidelines and passing legislation regarding the confidentiality of immunization records.

- Incomplete patient immunization histories in the registry. This concern requires a complete and accurate database of immunization records of VFC eligible children before implementing a complete registry among VFC providers.

For more information, please call the Hawai`i Immunization Program at (808) 586-8300 in Honolulu.

Submitted by Steven Terrell-Perica, M.A., M.P.H., M.P.A., CDC Public Health Advisor, and James Wasa, Systems Analyst, Hawai`i Immunization Program, Epidemiology Branch.

Fig. 1. Benefits Rated Very Important

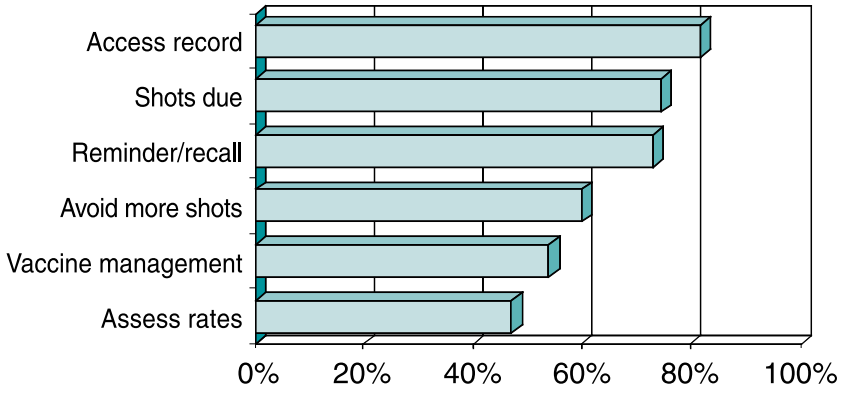


Fig. 2. Barriers Rated Very Important

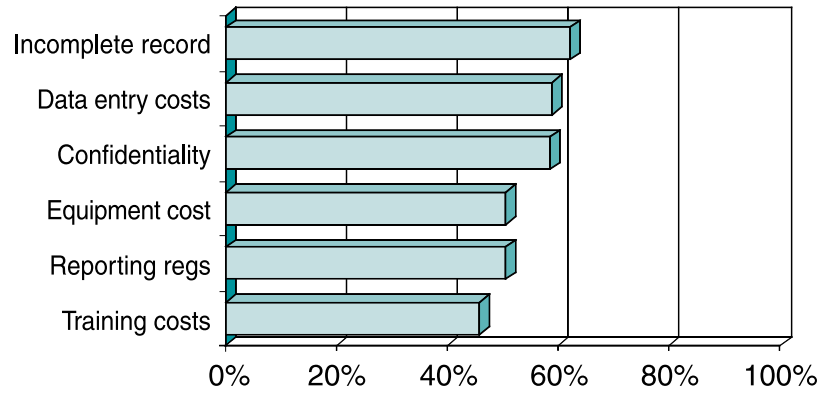
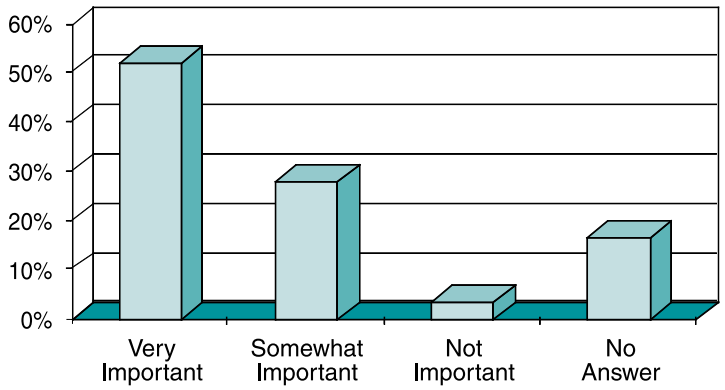
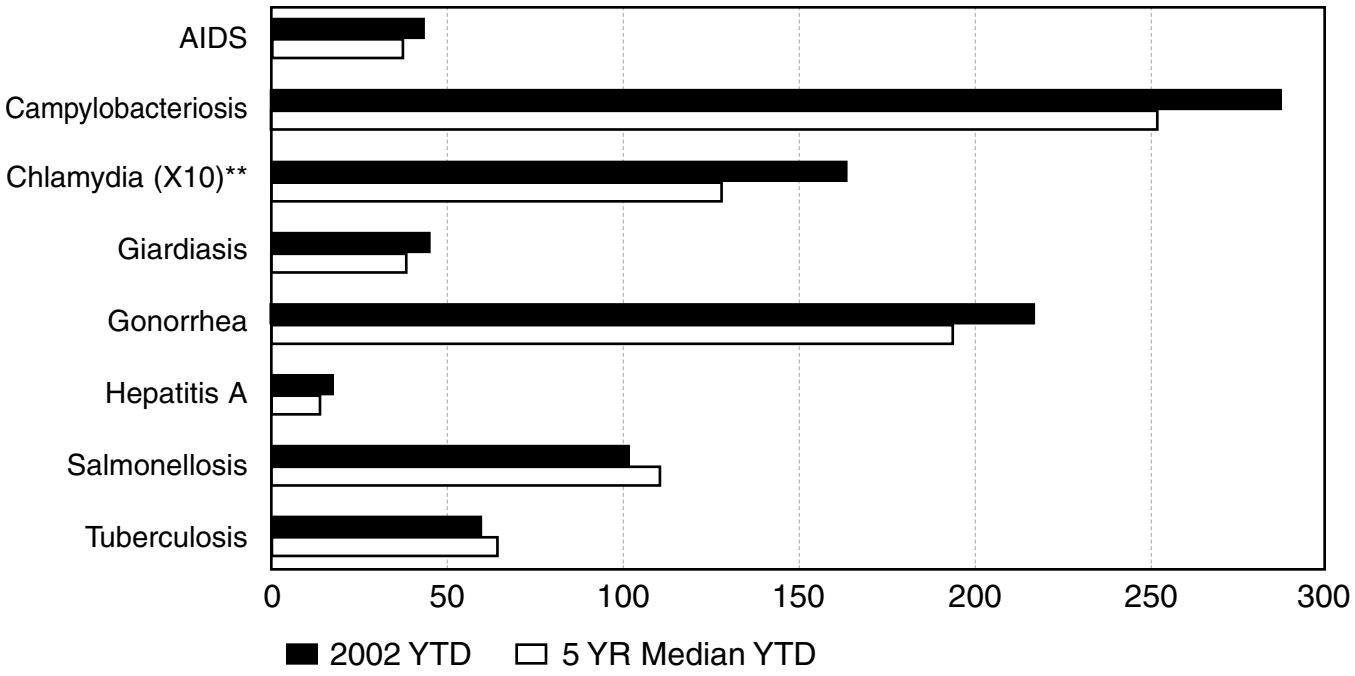


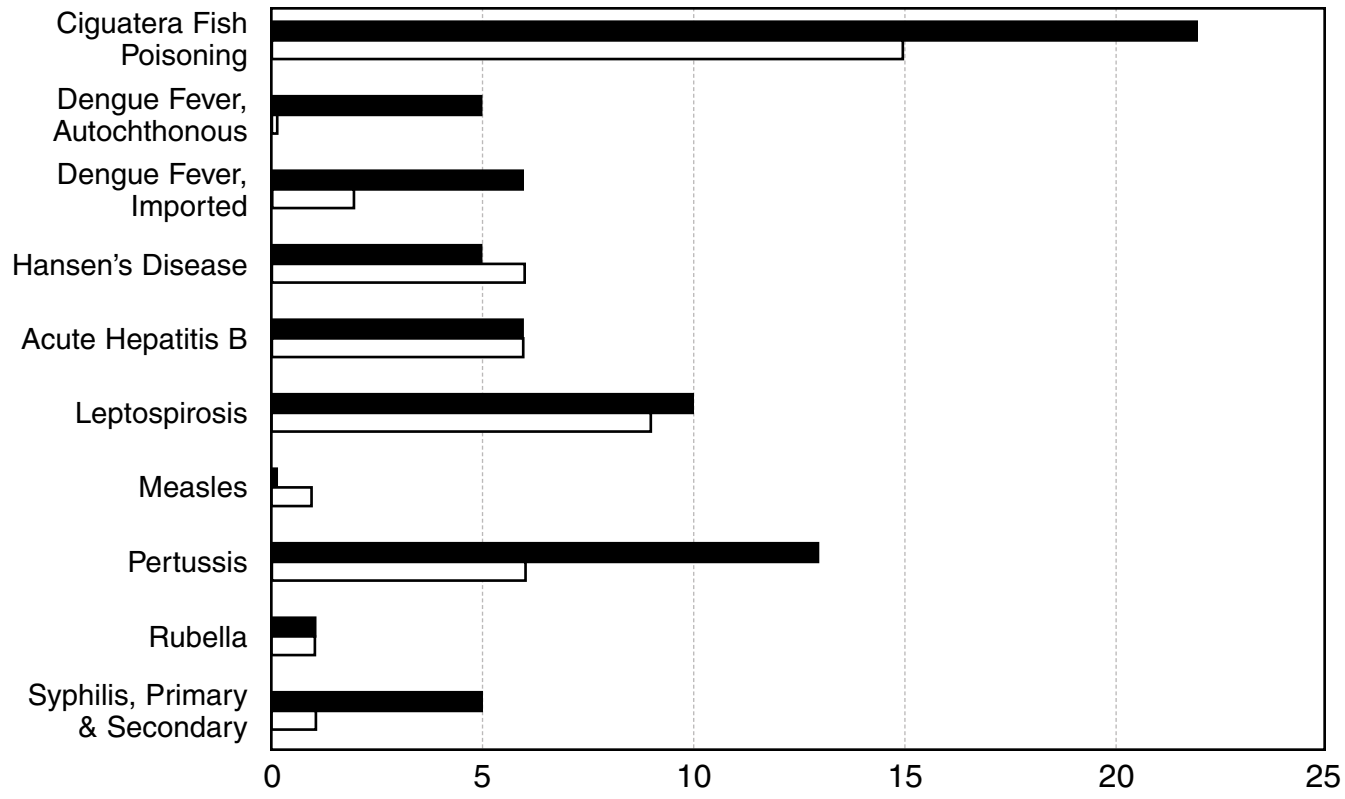
Fig. 3. Importance in Developing Registry



Communicable Disease Surveillance

Selected Diseases by Date of Report*
Hawai'i, 2002 Year-to-date Through May





* These data do not agree with tables using date of onset or date of diagnosis.
** The number of cases graphed represent 10% of the total number reported.

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May/June 2002

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